

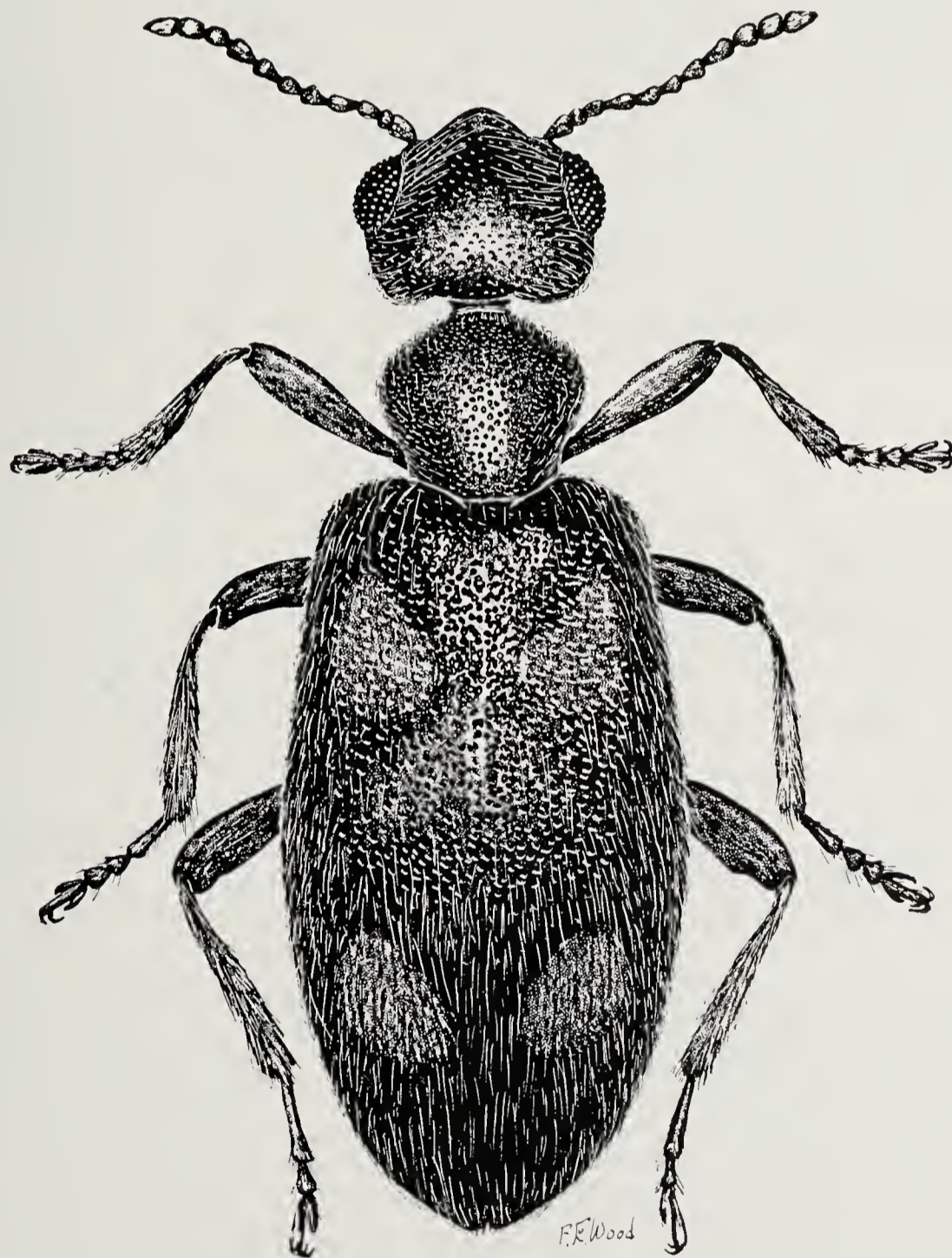
## Description and Biological Notes on the Larva of *Anthicus heroicus* Casey (Coleoptera: Anthicidae)<sup>1</sup>

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On July 27, 1966, while collecting aquatic beetles in the Bullpasture River two miles north of Williamsville in Highland County, Virginia, numerous dobsonfly egg masses were noticed on large midstream boulders. Close examination revealed some of the egg masses to be off-color. Instead of the normal chalk white they appeared a yellowish to brownish white, with one to several holes perforating the surface of each egg mass.

Further investigation showed the off-color cases contained beetle larvae which were feeding on the dobsonfly eggs and simultaneously creating their own living chamber as they fed. Thirty-seven larvae and 7 adults were collected

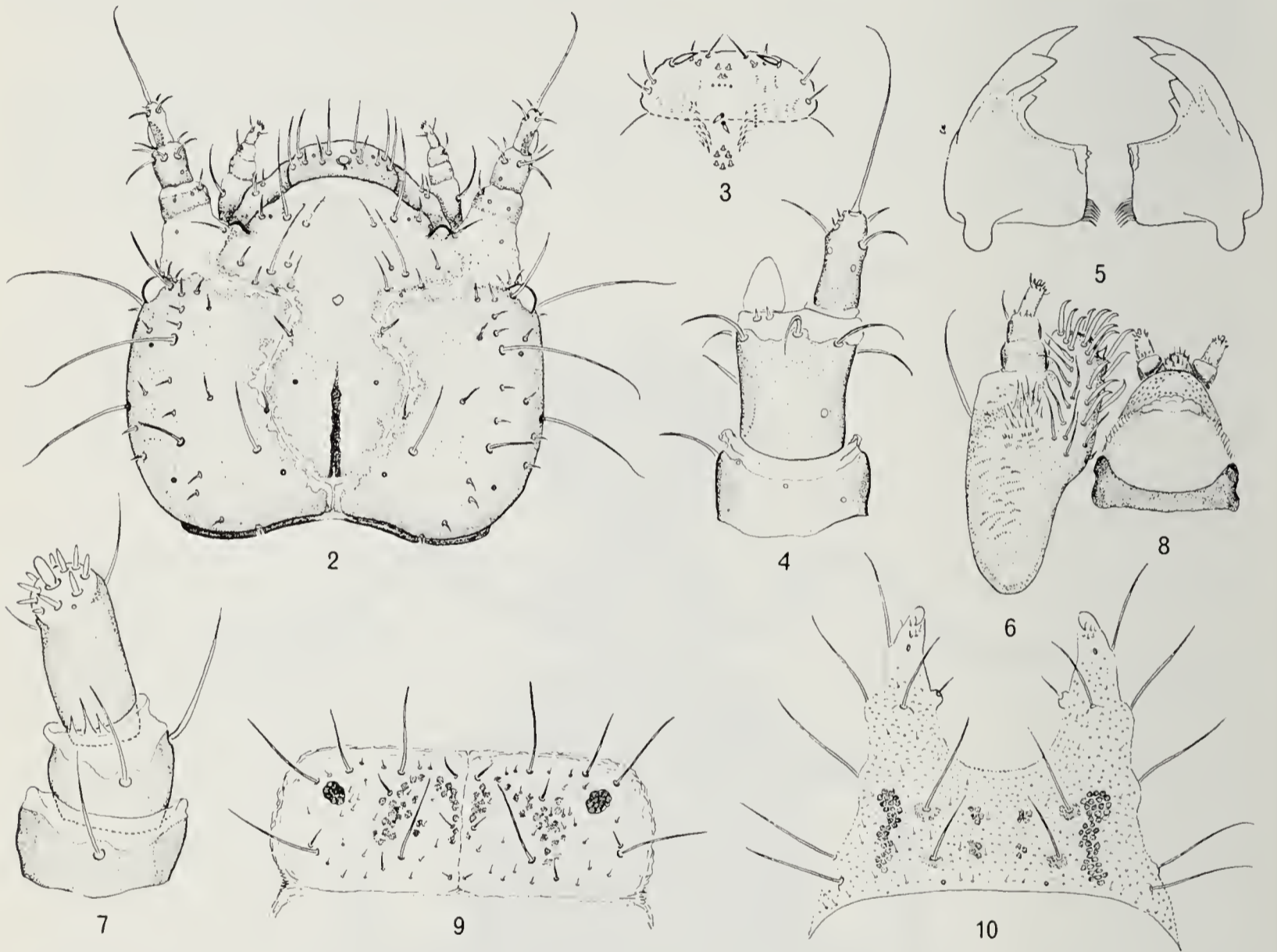


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FIGURES 1. *Anthicus heroicus* Casey, adult.

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from 6 cases. Subsequent identification of the adults by Dr. Paul Spangler, Department of Entomology, U.S.N.M., Smithsonian Institution, Washington, D. C., revealed the beetles to be *Anthicus heroicus* Casey 1895. The adult of this species (fig. 1) is one of the few North American *Anthicus* spp. to exceed 4 mm. in length. The color is piceous with paler antennae and legs. Each elytron bears one anterior and one posterior rufous spot as figured. The adult of this species was not figured when described. Werner (1964) revised the North American species of *Anthicus* s. str., and provided outline drawings of the adults with pigmentation patterns. The male genitalia were also figured.



FIGURES 2-10. *Anthicus heroicus* Casey: fig. 2, head, dorsal view; fig. 3, epipharynx; fig. 4, antenna, lateral view; fig. 5, mandible, ventral view; fig. 6, maxilla; fig. 7, maxillary palp; fig. 8, hypopharyngeal bracon; fig. 9, prothorax, dorsal view; fig. 10, urogomphi, dorsal view.

The peculiar biology of *A. heroicus* was noted by Howard (1896) who observed that while the larvae feed and develop inside the egg case, they leave the egg case to pupate. Werner (1964) stated that all indications point to most North American spp. of *Anthicus* as micro-scavengers on dead insects.

Peterson (1951) figures a dorsal view of the larva of *Notoxus* which agrees in general outline with *Anthicus*. Böving and Craighead (1930-31) figure several aspects of *Anthicus* spp. from Denmark, and the mandibles, maxilla, hypopharyngeal region, urogomphi, and entire lateral view of *Anthicus heroicus* Casey. Unfortunately, certain aspects are poorly figured. For example, the maxilla is drawn showing both dorsal and ventral setal patterns in what is supposedly a

dorsal view. For this reason the above listed structure of the larva of *A. heroicus* is herein refigured, and the epipharynx, antennae, prothorax, and dorsal view of the head are figured for the first time.

**Description of Last-Instar Larva of *Anthicus heroicus* Casey**  
(Figs. 2-10)

Total length 7.2 mm.; greatest width of pronotum 1.0 mm. Color of integument white with sclerotized portions light yellowish brown to brown.

Head quadrangular (fig. 2); 0.8 mm. wide; 0.6 mm. from labroclypeus to occipital foramen. Frontoclypeal suture absent; post labral area nonpigmented. Ecdysial cleavage line present, arising from median occipital region, immediately branching and running anteriorly inscribing a mushroom shaped figure composed of vertex and frontoclypeus, and ending mesad to antennal bases. Cervical sclerites absent. Dorsal surface of cranium faintly reticulate, setaceous, and bearing on each side of midline 1 large and 2 small frontoclypeal setae; 1 large and 4 small frontal setae; 1 isolated small seta bordering the ecdysial cleavage line mesally. Dorsal epicranial area lateral to ecdysial cleavage lines bearing on each side of midline 1 small isolated seta on lateral edge of ecdysial cleavage line; 1 large whiplike seta; 2 large setae; 10-15 small setae mostly of uniform length and constant position. Lateral epicranial region with 1 large whiplike seta and 4-6 small setae on each side of midline.

Labrum subrectangular with 3 large and 2 small dorsal setae on each side of midline; anteriomedial aspect nonpigmented.

Epipharynx (fig. 3) with 8 small marginal setae, 2 stout conical marginal setae, 3 pair of anteriomedial sensillae, followed by a transverse row of 4 sensory pits, 2 small median conical setae, and a posterior circlet of 6 sensillae.

Antennae (fig. 4) 0.3 mm. long, segments 1 and 2 somewhat laterally compressed. Segment 1 two times wider than long, with 1 mesal seta. Segment 2 slightly longer than wide, with 5 setae in a subapical ring. A blunt conelike sensorial process located distally on segment 2 ventrad to segment 3 and accompanied mediolaterally by 2 fine setae. Ultimate segment 4 times longer than wide, with 1 long terminal whiplike seta, 3 small equispaced subapical setae, and 2 fine apical setae ventrad to terminal seta.

Mandible (fig. 5—ventral view) nearly symmetrical, not protruding beyond end of labrum. Each with 2 dorsolateral setae at midlength, 4 scissorial teeth, rather jagged mola, and a penicillus composed of 6 backward projecting setae.

Maxilla (fig. 6) with a truncate mala, bearing dorsally 1 small mesal subapical forward projecting tooth; 3-4 marginal clawlike setae mesally; 7-10 submarginal clawlike setae mesally; 2-3 clawlike subapical setae laterad of midline; a rather irregular median longitudinal row of 8-11 long slender setae. A cluster of 15-20 delicate spines of varying lengths present in the pigmented area at base of palps. One long lateral whiplike seta on anterior margin of pigmented region. Maxillary palps (fig. 7) 3 segmented. Segment 1 about 2 times wider than long,

with 1 median ventral seta. Segment 2 about equal in length and width, bearing 1 median ventral and 1 lateral marginal seta and 3 delicate apical spines ventrally. Segment 3 two times longer than wide, bearing one fine seta on apical mesal aspect and one small seta on apical lateral aspect; apex with 10 small peglike setae and one large sensillaform seta.

Hypopharyngeal bracon (fig. 8—dorsal view) boneshaped. Labial palps 2 segmented with 6-8 small apical setae and 1 sensilla. Labium ventrally with 1 pair of small setae on the first prementum, the second prementum, and postmentum respectively.

Prothorax (fig. 9) broader than long, bearing dorsally on 2 lightly sclerotized tergal plates on each side of sagittal line 2 long whiplike anterior submarginal setae; 1 intermediate length anterior submarginal seta; 2 long whiplike posterior submarginal setae; 6 small setae of rather constant position; and about 30 minute randomly positioned setae.

On each side of midline of abdominal terga 3 large posterior submarginal whiplike setae; 1 intermediate length anterior submarginal seta; about 30 small to minute setae randomly positioned.

Urogomphi (fig. 10) 0.25 mm. long; dorsally bearing 2 longitudinal dorso-lateral irregular rows of darkly pigmented polygons and 2 median pairs of polygonal pigmented areas basally. Two pairs of long dorsal setae arising basally from lightly pigmented areas. One pair of long dorsal setae located one-fourth the distance from the apex. One pair of small marginal setae born on prominent mesal tubercles. Five pairs of long lateral setae spaced equidistant from each other. Many small setae scattered over the dorsum except for subapical clusters. Derm beaded in appearance except for the smooth upturned hooklike urogomphal apices.

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#### Notice

W. Wittmer has been appointed chief of The Entomology Department, Museum d'Histoire Naturelle, Augustinergasse 2, Basel, Switzerland. He will continue to identify Cantharidae, Drilidae, Phengodidae, and Malachiidae of the world. Small consignments may be sent freely, but for large ones permission should be asked.